MATTERS OF INTEREST TO AGRICULTURISTS.

Some Up-to-Date Hints About Cultivation of the Soil and Vields Thereof-Berticulture. Viticulture and Flori-



upon the "Simple Chemistry of the Farm." Everything in the earth is made up of about 65 kinds of matter, but 90 to 99 per cent of the mass of organic matter is composed of four only, car-

bon, oxygen, hydrogen and nitrogen. Adding silicon, aluminium and calcium, the seven will make up almost all of the mass of the world. In addition we have the various metals, which are of such value in the arts, and potassium, phosphorus and sulphur, which are essential for all animal and vegetable life.

In plants we find but thirteen forms of matter, including sodium, magnesium and chlorine in addition to those named above.

The first four come almost entirely from the air, while the nine mineral substances all come from the soil. Not all are of equal value, as many are in great abundance, while others are rare. Silicon is abundant in plants, but is the base of sand, and with aluminium, which is not found in agricultural plants, and is common in clay, makes up the great mass of our soils. They form the framework of our soils, and are nearly, if not quite, soluble. They hold the lime, magnesia, potasslum, phosphorus and sulphur, which are more soluble, and enter the plant in solution in water. These last cannot be dispensed with, as no plant can grow

without them. Upon Thursday morning Dr. Kedzie gave a talk upon "Soil Exhaustion." In the early days the valleys of the Mohawk and the James were thought to be inexhaustible, but after cropping for a number of years the yield obtained was so small that the crop was not profitable, and when that condition was reached they were exhausted. There are two causes for soil exhaustion: (1) unsuitable physical conditions, such as too wet or too dry, too loose or too compact, so that they are not in condition to grow crops, and (2) when plant food is lacking. The soil is not a mine to be worked out. It must be cultivated with reference to its continued fertility; anything else is robbery. All soils have a supply of reserve matter in an insoluble form that will be gradually drafted into service. Potash is derived from the decomposition of the mineral ingredients of the soil. Feldspar, one of the constituents of granite, contains over 16 per cent. of potash, and as it weathers it decomposes and produces clay, setting free a large amount of potash, of which 13.86 per cent, is available as plant food. The greatest danger is from the exhaustion of the soil nitrogen. While it exists in immense quantities in the air, it is in a free state-in that form it is of no value to most crops. As a rule about 8% pounds of combined nitrogen per acre are annually brought down in rain or snow, but this is insufficient for farm crops. The humus of the soil, as a result of nitrification, yields up a large amount of combined nitrogen. Nitrates: are easily washed out of the soil, but it can be largely prevented if some crop is kept upon the land, as winter rye, which will take it up. Fallow land develops nitrogen, but a large amount

In his fourth lecture Dr. Kedzie spoke regarding "Manure and Fertilizers." He considered barn-yard manure as the best material for use as a fertilizer, and the pivot of successful farming. By means of charts, the loss of the manortal elements when it is exposed to the weather was shown. When kept for a year under the caves of a barn. more than four-fifths of the ammonia and nearly as much of the potash was lost. In the open air, but away from the eaves, the loss was slightly less, but was more than two-thirds for the above elements. Only about one-fourth of the phosphoric acid was lost under either condition.

is washed away.

Wood ashes came next in value as a fertilizer; 100 pounds of wood ashes free from dirt will contain 8 pounds of potash and 5.4 pounds of phosphoric asid and will be worth nearly 50 cents per bushel. As they are seldom pure, one-half the above will be a high price. Leached ashes have lost part of their potash, but are generally one-third as valuable as the unleached. There is little value in coal ashes.

All the remains of vegetables and especially of animal materials are of great value as fertilizing materials, as well as for their physical effect upon the soil, as the capacity of the soil to hold water depends largely upon the amount of vegetable matter it contains. The lack of nitrogen can be helped by growing leguminous crops, such as clover and peas, as they have warts or tubercles upon their roots which have the power of utilizing the free nitrogen

of the air. (From Farmers' Review special report of South Haven (Michigan) farmers institute.)

Michigan Horticultural Convention. (Condensed from Farmers' Review Stenographic Report.)

Mr. Williams, of Douglas continued his remarks as follows:

In Douglas, my land consists of 60 acres, elevated 40 to 45 feet along the We did not try to use a windmill because our land is so sandy that an atinch iron pipe. With the assistance of ment. - Ex.

FARM AND GARDEN, these we are enabled to irrigate by ditches. We were at first greatly puzzled to know how to get over the ravines and ditches in the field, for we could not be all the time moving that heavy fron pipe. We finally hit on a plan to make water run up hill. We did that by means of a big home-made hose constructed of duck. We put this duck hose on the end of an iron pipe and lead the water where we want it. It is so constructed that we can couple HE second talk of it quickly. We have about 300 feet of Dr. Kedzie was this hose in use, and it answers the purpose very well, but of course will not stand much pressure. We have had little experience in trying this on bearing fruit trees. We tried it on 400 peach trees, and those trees bore fruit much more heavily than usual. We also watered an orchard of cherry and plum trees with strawberries between the rows. The strawberry plants were about ruined when we began the watering, but they revived at once. Most of our irrigating this last year has been on young growing trees and on common field crops, such as peas, beans and potatoes. We now have our machinery and fields ready to begin operations the coming year. While we realize that some of our work is yet in the experimental stage, yet we are not discouraged for the future. We believe that if the profit to our young trees could be shown, it would be seen that water-

ing them was very profitable, Q. How do you brigate corn? A .- We run the water along the rows of corn and can thus water about four acres per day. In watering trees, we can water about eight to ten acres per day. The cost of running the engine and tank is \$5 to \$6 per day.

Q.-What is the total cost of a plant like yours with capacity to water twenty

A .- We have machinery to irrigate eighty acres, and the cost for engine, pump and pipes would fall between \$500 and \$1,000 ordinarily, but we got a second-hand engine. A \$1,000-plant should irrigate about eighty acres.

Q .- In surface irrigation, at what time of day is it best to make the application of water?

A .- At any time of day. If we could run our plant all night, we would make the application during the latter part of the day.

Professor Tracy.-I would like to say that it is not so much the contour of the land as it is the character of the soil that concerns irrigation. Some people think that because they have a stream that is in a good position for irrigating therefore they can surely irrigate.

Q .- Is it possible to irrigate from a two or three-inch well, where you have to draw the water for seventy feet?

Professor Taft .- I think so, and if you can't do it with one well, drive three or four and have a reservoir. But that 70-foot lift is rather a hard question to consider.

Professor McCleur.-There is one place in Illinois where irrigating is being done, and that is at the insane asylum at Kankakee. They have there one pump, and they pump water from the river. They have not done any experimenting. They got a man from the West who was perfectly familiar with the work of water. I happened to be there this fall, and saw them irrigating a cabbage field. They were running the water between every two rows, each row being forty rods long. The water must have been six to eight inches in depth. They had watered that field from one to three times, and they said that was enough. They said in a general way that there was no doubt but that their crop was at least double that of last year. They used so much water each time that the ground was too soft to walk on. One could not step on it without sinking down some distance. The water ran between the rows, which were rounded up pretty well. They seemed to retain the moisture for a long time.

Cost of Handling Ear Corn.

A gentleman from the country says that the cost of carrying ear corn one year, or longer, is probably greater than many figure it, on account of the shrinkage. For instance, the cost of 1.000 bushels of corn at 21 cents is \$210; interest at 7 per cent. for a year, \$14.70; expense of crib, \$20; cost of the sorn at the end of one year, \$244.70. But it is estimated that the shrinkage will amount to 20 per cent., or 200 bush cla; therefore, there will remain but 800 bushels to sell. So \$214.70 actually represents the cost of 800 bushels at the end of one year, or a fraction over 30 cents a bushel, without figuring anything for insurance or risk in holding showing that 21 cents now is equal to about 30 cents a bushel one year from now. Ex.

Watch the Peach Trees.

Those of our readers who have peach orchards will do well to begin their work during the fair weather of late winter. Experiments have shown that the first work to be done is to pick off and burn the mummified fruit that may still be found hanging on the trees. The reason for this is that the diseases that are likely to affect the peach and for which we spray may have a foothold in this old fruit. The leaves are gone and so will not prove a menace to the new crop. The work is all the more necessary if the trees were affected during the last season.

How to Irrigate .- Prof. Emery writes: Much depends on the season at which water should be applied to crops. On lands in which clay predominates the water should not be used until the grain is far enough advanced to shade the ground, otherwise the surface soil will river. The country is gently rolling, bake, to the great detriment of the crops. Manifestly where water is used on crops, it is desirable to get the seed tempt to build a reservoir would be a | into the ground early, so as to hasten failure. So we have purchased a 10- the period of development of the grain, horse power engine and 600 feet of 4- when water can be used without detriHOTELS AND INSOMNIA.

Palace Loses Its Attractions if Steep Is Impossible

The beauty of the new hotels erected daily at health resorts, seaside places and on the Riviera cannot be denied. says a foreign exchange. The windows are light and airy, the cellings high. the reception-rooms superb, and appointments of bedrooms and bathrooms uxurious and costly. No reasonable expense is spared, and yet these splendid, palatial abodes are often deserted by invalids and comfort-lovers for the more homely and dowdry hostelries. The reason of this is not far to seek, Most of these hotels are intolerably noisy. They are run up lightly, the walls are thin, the floors are neither fire nor sound-proof, so that to dwell in them is rather like living under s sounding-board or being compressed into a box with voices all around you. The new spring locks of the doors sound like miniature cannon going off; there is the inevitable man overhead who goes to bed late after a cheerful bout of boot-throwing and dragging of portmanteaus, while he whistles loudly or talks in a high baritone to his friend next door.

Then beside you is the early riser, who takes a walk before breakfast, and is preparing for a pedestrian or bley cling tour. The waiter whispers in hourse tones of the chambermaid outside, while she pertly rattles cans and baths as a flirtation accompaniment in esponse. To the weary invalid in search of rest and sleep these things are unspeakably annoying. What is a palace in which you cannot close your eyes in comparison to the humble cot where gentle slumber courts the weary eyelida? Insomnia is the growing malady of the age. Thomas Carlisle began the agonized mean of rebellious nature and it has gone on forever since. Sleep is the one boon, the one comforter, for which we of these latter days crave, and when we go faint and weary to the seashore or to the glowing southern land of oranges it is pertinaciously denied us.

"First Nighters" at the Station. It is interesting to see the emotion betrayed by a man who has been arrested for the first time and who has to stay in the station house all night. The white man who is a little above the great unwashed will shrink in horror from the black hole. He will generally ask to be allowed to stay outside the office. This request cannot be granted. The colored woman generally cries. The tough negro wants to fight before he goes in. So does the tough white man. The more respectable negro will not say anything until after he has been placed in the cell, then he will fall on his knees and pray. White women generally cry and some of them lie down on the floor and have to be dragged into the cell. Taking everything in there are some unique characters among the "first nighters." It does not take them long to learn the without being directed.--Louisville Commercial.

A Small Electrician. The smallest and at the same time the youngest electrician in the world is a fox terrier namer Strip, belonging to a firm of electric light engineers in London. She is only 31/2 years of age and her business is to carry the wires through the narrow tubes which connect the dynamos at the central station with the private houses, which duty she performs with the greatest skill and quickness, never failing to find her way through the most intriente passages. According to her owners she is the most valuable accessory to their business and they would have great difficulty in doing their work without her. Of this the little dog seems quite certain, for she is very vain and may be seen strutting about as if the whole place belonged to her. - Exchange

An Extravagant Court. A French antiquarian has brought to

light some interesting dressmaker's bills of the ladies of Napoleon's court. They are from the account books of Leroy, the Worth of his time in matters of dress and a bad fellow generally, but an undisputed arbiter of taste in feminine raiment. It appears that Josephine's yearly bill was about \$30,000. and this was a greater amount than Marie Louise or Queen Hortense dared or desired to spend. Napoleon's mother was not a patron of Leroy, which is explained by the fact that she preferred to receive her dresses from her daughters rather than purchase them herself.

Bleaching Cotton.

A new apparatus for bleaching cotton loth has recently been introduced in a foreign cotton mill. The cloth, after being soaked in brine, is passed between two rollers, one of iron, the other of carbon, serving as electrodes and being properly connected to a source of sufficient electrical energy. The salt is decomposed by the current into chlorine, the bleaching agent, and caustic soda. The latter is absorbed by a wet blanket running over the Iron roller.

The Howell Torpedo.

The new Howell torpedo was tried officially in December at Newport before the torpedo board of the navy. The torpedo made about twenty-eight knots an hour for a range of 600 yards, being submerged four and one-half feet The trial was very satisfactory.

"The Sign of the Cross." Dean Hole of Rochester, England,

having seen Wilson Barrett's new play. "The Sign of the Cross," calls it "a sacred endeavor to ring out the false, ring in the true," and calls on

VOICE OF OUR PRESS AGAINST M'KINLEYISM.

The Attacks on Bayard Cannot Be Reduced to Reason-The Republican Congress Making a Record of Infamy-Making Campaign Thunger.

Chicago Chronicle: The Hitt committee of the house of representatives wants censure pronounced upon Thomas F. Bayard.

It is characteristic of republicans that whenever they have the power they seek to deny the freedom of speech. Adams tried it in the alien and sedition bill, Adams being a federalist, the precursor of the republican party of today. During the war of the rebellion the republican party in the state department rang its little bell and every Tom, Dick and Harry the country over who said things that were not relished by the administration was sent to any one of the numerous fortifications of the Unit-

There is no attempt by the Hitt committee to answer the speech of Mr. Bayard. There is merely insistence that he shall be rebuked for speaking.

Let us turn to Mr. Bayard's speech for the purpose of ascertaining what he said that so wrings the withers of the republican party: "In my own country," said Mr. Bayard in an address on individual freedom delivered before the Edinburgh Philosophical institution on Nov. 7 last, "I have witnessed the insatiable growth of that form of state socialism styled protection, which I be-Heve has done more to foster class legislation and create inequality of fortune, to corrupt public life, to banish men of independent mind and character from the public councils, to lower the tone of national representation, blunt public conscience, create false standards in the popular mind, to familiarize it with reliance upon state aid and guardianship in private affairs, divore ethics from politics and place politics upon the low level of a mercenary scramble, than any other single cause.'

Mr. Bayard is right, though all the Hitts in congress were to thunder through their committees in the house of representatives to the contrary. They ask that the gag law shall be applied to statesmen who utter truths eternal. They can succeed because they control the house, but the more it is sought to stifle the voice of conscience and honor and true statesmanship the more the truth will be pronounced.

The little Lilliputians of the house are seeking to tie down the Gulliver at St.

Will They Practice Economy? Chicago Chronicle: Senator Frve of Maine says in the hearing of the country that the tariff bill is as dead as

Julius Caesar.

Didn't Mr. Frye, didn't every repubways, though, and on their second visit | lican, didn't Speaker Reed, didn't Dingthey generally go through the routine | ley, chairman of the ways and means committee know that that tariff hill was never presented with the idea that it would live? Did they not know that it was a mere play before the country, a pretense and a fraud? That tariff bill died a-bornin'. It was as dead as

> Julius Caesar before it left the house. Republican statesmen assert that the country is falling in arrears, that there is an increasing deficit by reason of a diminution of receipts. If that is so and the measure designed to increase revenues is as dead as Julius Caesar, what are republican statesmen to do about the matter? An obvious way is open to them. They can retrench. From the example the country had of a Reed congress, which reached \$1,000,-000,000 of appropriations, not much may be hoped, but the statesmen, according to their own showing, are confronted by an absolute necessity Wherefore, if there is any relish of salvation in them, they must resort to the one possible means out of the difficulty. They must economize.

> Until congress shall have adjourned we will not know what the appropriations are, but appearances indicate that before it adjourns this congress will make total appropriations larger than ever were ventured before. They will make them not because the country needs them, but because congressmen want the rake-off in their districts from river and harbor appropriations, from public bulldings, from private pension bills, from all those means which congressmen learn are personally beneficial to themselves in a political way.

Having accomplished nothing thus far, the republican congress has confessed its inability to make affirmative legislation looking to an increase of revenue, which it says is necessary. Let us now look to see what in the way of needed economy it can accomplish.

What Have Republicans Done? Chicago Chronicle: With great flourish of trumpets the republicans, who held vast majority in the house of representatives and organized the senate

of the United States, told the people of

this country what they proposed to do.

Well, what have they done? In segsion since the first day of December last, what have they done? May we not have some specification? They professed themselves to be wonderfully gifted in the matter of creating public confidence, increasing public revenues, making everybody, whatever his bustness and however conducted, rich and happy. But what have they done? Let us try if we can get down to a specification. If they are competent, surely three months ought to demonstrate that by their fruits they are justified in their claim. Will they tell us of anything they have done?

The house passed a tariff measure. "all earnest Christians" to support it The senate now gives practically public has been an impression t "by their presence and their praise." notice that the tariff measure shan't something for the country,

DEMOCRATIC PARTY. go through. The house, instead of meeting the recommendation of the executive, who understood the situation and who did not ask for a tariff bill, but money question, passed a ridiculous bill of its own. That the republican senate

sent back with a free coinage taeasure. But where is the affirmative legislation? Where is anything accomplished? What has Mr. Reed done as speaker and what have all the great republican statesmen of the senate done? They have been sitting in congress for ninety days and where are the results of their capacity?

Not a measure of public concern and utility has been perfected. This republican house and this republican senate stands before this country as utterly imbecile and impotent as any oody of statesmen ever appeared before a constituency whom they had deceived by repeated assertions of their regacity and their prowess.

The republican majority in congress is an utterly fruitless majority. It has boasted much, it has accomplished nothing.

From Lincoln to Lorimer.

Chicago Chronicle: A few years ago Hempstead Washburne, being then mayor of Chicago, kicked out of the city employment a man named Lorimer.

Time has passed and the leading republican journal of Chicago presents to its readers an interview with this same Lorimer, now a statesman at Washington, stating that in his opinion the people of Chicago have honored him sufficiently, both locally and in a national sense, and he is perfectly content to remain one of their representatives in congress and abstain from look. ing after the United States senatorship. In no other party that ever was heard of, ever formed amongst men, ever tolerated among honest people, save the republican party, would such a situation be possible.

This discarded serving man in the city hall, quietly considering in the columns of the leading republican journal not only of Chicago but of the United States whether or not he will take the place which Lincoln sought after in vain and which Douglas long occupied.

Even in this interview Mr. Lorimer is patronizing. He will give the senatorship to Mr. Hopkins, a sop to that gendeman, doubtless, to soothe him for his defeat by Tanner.

But what comes of the promise made repeatedly and earnestly by the same machine of which Lorimer is a controlling part, that after the selection of Cullom there would be recognition by the republican party that a colleague must be sent to Cullom from Chicago?

Chicago, it is apparent, then, is to be gnored, even the renowned kicked-out clerk in the water office sacrificing himself to soothe the troubled soul of Hopkins of Aurora.

There was a time in Illinois when the republican party did have the breed of noble bloods and gave them play and scope before all the people. And now a Lorimer leads the republican party by the nose.

Only One Explanation Possible.

New York World: The McKinley. editors open their campaign with the astonishing claim that woolen mills in this country are closing because the wicked democrats untaxed their raw material. The editors insist that woolen manufacturers cannot thrive unless the cost of wool is enhanced by a tax. They fail to explain how it is that the woolen mills of every other country in the world, even those having protective tariffs, managed to thrive with free wool. Nor do they tell why our cotton. silk, leather and boot and shoe manufacturers get on so well with untaxed raw materials. The real explanation of the alleged phenomenon is the old one; The boy lied."

Cannot Rise Above Party Politics.

Indianapolis Sentinel: Who ever saw a more pitiable spectacle of incompetency and imbecility than is presented by the present congress? It has not an idea above politics, and politics at that of the cheapest and worst kind. It would not even have gone through the farce of a pretended consideration of the evils of our money system if the president had not lashed it into action by a special message. At no time has it risen to the level of statesmanship. At no time has it shown even a decent interest in the welfare of the sixty millions of people for whom it is supposed to legislate:

Quay Taking Everything in Sight. Springfield Republican: Generals Harrison and Alger continue to smile and say, "No, I thank you," but Mr. Quay is accepting everything that is passed his J. Francis, Cen'l Pass'r Agt, Omaha, Neb. way and rapidly reaching out for more, The Pittsburg papers call attention to the fact that of the forty delegates now elected to the republican convention the largest number are pledged to Quay, while the solid republican south is expected to go for him in great "blocks of five." His campaign is apparently being taken seriously in Pennsylvania

A Change of Policy.

Birmingham News: McKinley says that the republican party "stands for a commercial policy that will whiten every sea with the sails of American vessels flying the American flag." If this is true it is quite an improvement over the republican policy that has heretofore been in vogue, by which nearly every American flag and sail has been driven from the high seas.

Party Vs. Patriotism.

Grand Rapids Democrat: After a areful examination of a large mass of the speeches delivered in republican gatherings this week it would appear that Abraham Lincoln's life work was devoted to the republican party. There has been an impression that he did

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No Use for It.

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